

CLAIMS

We claim:

1. A method for activating a mobile communication device in a wireless network comprising:

5 establishing a data transmission link between said mobile communication device and the wireless network;

said mobile communication device receiving, via said data transmission link, at least one assigned operating parameter; and

10 storing said at least one assigned operating parameter in a memory element associated with said mobile communication device.

2. A method according to claim 1, wherein said memory element initially contains at least one temporary operating parameter that facilitates operation of said mobile communication device in an activation mode.

15 3. A method according to claim 2, wherein said storing step replaces said at least one temporary operating parameter with said at least one assigned operating parameter.

20 4. A method according to claim 2, further comprising the step of transmitting an attach request using said at least one temporary operating parameter.

5. A method according to claim 1, wherein said establishing step establishes a wireless packet data transmission link.

6. A method according to claim 1, wherein:
5 said mobile communication device is compatible with General Packet Radio Service (GPRS); and
said at least one assigned operating parameter comprises an International Mobile Subscriber Identity (IMSI).

10 7. A method according to claim 1, further comprising transmitting, via said data communication link, information indicative of a number of service features selected by a user of said mobile communication device.

8. A method for over-the-air modification of service features for a user of a
15 mobile communication device capable of receiving data in accordance with a data transmission protocol, said method comprising:

establishing a wireless data transmission link associated with said mobile communication device; and

said mobile communication device transmitting, via said wireless data
20 transmission link and in accordance with said data transmission protocol, a request to modify at least one service feature for said user.

9. A method according to claim 8, further comprising the step of receiving, via said wireless data transmission link and in accordance with said data transmission protocol, information related to at least one current service feature for said user.

5 10. A method according to claim 8, wherein:
said mobile communication device is compatible with General Packet Radio Service (GPRS); and
said establishing step establishes a wireless Internet Protocol (IP) data transmission link.

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11. A method according to claim 8, wherein:
said establishing step establishes said wireless data transmission link between said mobile communication device and a network support node;
said transmitting step transmits said request to said network support node; and
15 said method further comprises the step of updating a service feature database associated with said user, said updating step being performed in response to said request.

12. A programmable module for use with a mobile communication device capable of receiving data in accordance with a data transmission protocol, said
20 programmable module comprising:

a memory element for storing at least one temporary operating parameter that facilitates operation of said mobile communication device in an activation mode; and

an interface configured to receive at least one assigned operating parameter during said activation mode, wherein said mobile communication device receives said at least one assigned operating parameter over a data transmission link and in accordance with said data transmission protocol.

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13. A programmable module according to claim 12, wherein said memory element is further configured to store said at least one assigned operating parameter.

14. A programmable module according to claim 12, wherein said memory element is further configured to overwrite said at least one temporary operating parameter with said at least one assigned operating parameter.

15. A programmable module according to claim 12, wherein:
said mobile communication device is compatible with General Packet Radio Service (GPRS); and
said programmable module is configured as a Subscriber Identity Module (SIM).

16. A programmable module according to claim 12, wherein:
said at least one temporary operating parameter comprises a temporary International Mobile Subscriber Identity (IMSI); and
said at least one assigned operating parameter comprises a permanent IMSI.

17. A programmable module according to claim 12, wherein said mobile communication device receives said at least one assigned operating parameter over a wireless packet data transmission link.

5 18. A mobile communication device capable of receiving data over a data transmission link in accordance with a data transmission protocol, said mobile communication device comprising:

a receiver configured to receive, via said data communication link and in accordance with said data transmission protocol, at least one assigned operating
10 parameter; and

a memory element electronically coupled to said receiver, said memory element being configured to store said at least one assigned operating parameter.

19. A mobile communication device according to claim 18, wherein said
15 memory element initially contains at least one temporary operating parameter that facilitates operation of said mobile communication device in an activation mode.

20. A mobile communication device according to claim 19, further comprising a transmitter configured to transmit, via said data communication link and in accordance
20 with said data transmission protocol, an attach request using said at least one temporary operating parameter.

21. A mobile communication device according to claim 18, wherein:
said receiver is compatible with General Packet Radio Service (GPRS);
said at least one temporary operating parameter comprises a temporary
International Mobile Subscriber Identity (IMSI); and

5 said at least one assigned operating parameter comprises a permanent
International Mobile Subscriber Identity (IMSI).

22. A method for activating a mobile communication device capable of
receiving data in accordance with a packet data protocol, said method comprising the
10 steps of:

providing a programmable module that is compatible with said mobile
communication device, said programmable module storing at least one temporary
operating parameter to facilitate operation of said mobile communication device in an
activation mode;

15 establishing a packet data transmission link between said mobile communication
device and a network support node during said activation mode;

transmitting, via said packet data transmission link, at least one assigned
operating parameter to said mobile communication device; and

storing said at least one assigned operating parameter at said programmable
20 module.

23. A method according to claim 22, wherein said storing step replaces said at least one temporary operating parameter with said at least one assigned operating parameter.

5 24. A method according to claim 22, further comprising the step of transmitting, from said mobile communication device, an attach request using said at least one temporary operating parameter.

10 25. A method according to claim 22, wherein said establishing step establishes a wireless packet data transmission link.

26. A method according to claim 22, further comprising the steps of:
detaching said mobile communication device from said network support node;
and
15 generating, from said mobile communication device, a reattach request using said at least one assigned operating parameter.

27. A method according to claim 22, further comprising the step of receiving, via said packet data communication link, information indicative of a number of service
20 features selected by a user of said mobile communication device.

28. A method for over-the-air modification of service features associated with a user of a mobile communication device, said method comprising the steps of:

establishing a communication link between said mobile communication device and a network support node;

5 transmitting, via said communication link, information related to a number of current service features for said user, said transmitting step being performed by said network support node;

said network support node receiving, from said user, a request to modify a current service feature associated with said user; and

10 updating a service provider database associated with said network support node in response to said request to thereby implement the modification of said current service feature.

29. A method according to claim 28, wherein:

15 said mobile communication device is capable of receiving data in accordance with a packet data protocol;

said communication link established during said establishing step is a wireless packet data transmission link; and

said receiving step receives said request over said wireless packet data
20 transmission link and in accordance with said packet data protocol.

30. A method according to claim 29, wherein:

said mobile communication device is compatible with General Packet Radio Service (GPRS); and

said establishing step establishes a wireless Internet Protocol (IP) data transmission link.

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31. A method according to claim 28, further comprising the steps of:

retrieving said number of current service features for said user from said service provider database; and

10 determining the location of said mobile communication device to facilitate said transmitting step.

32. A method of providing user-selectable service options for a wireless device within a wireless network, comprising:

15 providing an electronic option menu to a user of the wireless device;
transmitting user service option selections to the wireless network; and
providing selected service options to the wireless device in response to the user service option selections.

20 33. A method of providing user-selectable service options for a wireless device according to claim 32, further comprising establishing a wireless link between the wireless device and the wireless network.

34. A method of providing user-selectable service options for a wireless device according to claim 33, wherein providing an electronic option menu further comprises providing an electronic option menu on the wireless device after establishing the wireless link.

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35. A method of providing user-selectable service options for a wireless device according to claim 34, wherein the electronic option menu further comprises promotional information.

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36. A method of providing user-selectable service options for a wireless device according to claim 32, wherein providing an electronic option menu further comprises providing an electronic option menu via a communication device other than the wireless device.

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37. A method of providing user-selectable service options for a wireless device according to claim 32, further comprising:

verifying user information in the wireless network; and
registering the user service option selections in a database.

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38. A method of providing automated modification of service options for a wireless device in a wireless network, comprising:

providing a user information regarding present services;

providing the user a menu of possible services;
receiving service modification choices from the user; and
modifying user services according to the service modification choices.

5 39. A method of providing automated modification of service options for a
wireless device in a wireless network according to claim 38, wherein providing a user
information regarding present services further comprises providing the user information
via the wireless device after establishing a communication link between the wireless
device and the wireless network.

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 40. A method of providing automated modification of service options for a
wireless device in a wireless network according to claim 39, wherein providing the user a
menu of possible services further comprises providing the menu via the wireless device
and wherein receiving service modification choices further comprises receiving the
15 service modification choices via the wireless device.

 41. A method for activating an unprogrammed mobile station from a service
node in a radio packet communication network, the method comprising:
 storing an activation identifier in a memory that is accessible by the service node,
20 wherein the activation identifier includes identity information about the unprogrammed
mobile station;

connecting the unprogrammed mobile station to the service node via a data control channel;

transferring the unprogrammed mobile station from the data control channel to a corresponding packet channel, in which packet control and data signals are

5 communicated between the service node and the mobile station; thereafter

accessing the memory to identify the mobile station according to the activation identifier;

communicating activation signals to the mobile station via the packet channel; and thereafter

10 programming the mobile station for receiving packet data from an applications server.

42. A method of activating a wireless device in a wireless network comprising:

15 attaching the wireless device to the wireless network;

establishing a packet data protocol (PDP) context for the wireless device attached to the wireless network; and

providing activation options to the wireless device while the wireless device is in the PDP context.

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43. A method of activating a wireless device according to claim 42, wherein attaching the wireless device to the wireless network further comprises:

preprogramming the wireless device with a temporary mobile station identification and internet protocol address of an activation server in a subscriber identity module (SIM); and

5 sending an attach request signal including the temporary mobile station identification to a serving general packet radio service support node (SGSN) over a packet control channel.

44. A method of activating a wireless device in a wireless network according to claim 43, wherein attaching the wireless device to the wireless network further
10 comprises:

sending a location update signal to a home location register (HLR) supporting the unprogrammed mobile station; and

15 sending subscription data from the HLR to the SGSN, the subscription data informing the SGSN of an unprogrammed mobile station and that no services other than activation are allowed in a packet data protocol context.

45. A method of activating a wireless device in a wireless network according to claim 44, wherein attaching the wireless device to the wireless network further comprises sending an attach accept signal from the SGSN to the mobile station.

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46. A method of activating a wireless device in a wireless network according to claim 45, wherein establishing a PDP context for the wireless device attached to the wireless network further comprises:

initiating a special PDP context for activation request to the SGSN; and

5 transmitting a create PDP context request from the SGSN to a gateway general packet radio service support node (GGSN).

47. A method of activating a wireless device in a wireless network according to claim 46, wherein establishing a PDP context for the wireless device attached to the wireless network, further comprises:

creating a new entry in a PDP context table;

assigning a dynamic IP address for the mobile station;

returning a response to the SGSN including the dynamic IP address; and

15 sending a response signal, from the SGSN to the mobile station, indicating an active context for activation, including the dynamic IP address.

48. A method of activating a wireless device in a wireless network according to claim 47, wherein the step of providing activation options further comprises:

20 connecting the mobile station to the IP address of an activation server using the preprogrammed IP address in the mobile station's SIM; and

providing the mobile station's dynamic IP address to the activation server.

49. A method of activating a wireless device in a wireless network according to claim 48, wherein the step of providing activation options further comprises:

transmitting data from the activation server to the mobile station using the dynamic IP address; and

5 providing activation functions to the mobile station for user service choices.

50. A method of activating a wireless device in a wireless network according to claim 49, wherein the step of providing activation options further comprises

10 downloading SIM information to the mobile station, including a permanent mobile station identification.

51. A method of activating a wireless device in a wireless network according to claim 50, further comprising, after completion of activation:

deactivating the activation context;

15 releasing the activation context IP address; and

detaching the temporary mobile station identification from the network by sending a detach signal to the SGSN to clear the mobility information from the SGSN and the HLR.

20 52. A method of activating a wireless device in a wireless network according to claim 51, further comprising, after activation:

resetting the mobile station;

storing a permanent mobile station identification in the mobile station;
initiating system selection using intelligent roaming; and
registering with the preferred system using the permanent mobile station
identification.

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